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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/551,516

09/28/2005

Greg A. Whyatt

2370766-04

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32215 7590 03/31/2009
KLARQUIST SPARKMAN, LLP
121 SW SALMON STREET, SUITE 1600
ONE WORLD TRADE CENTER
PORTLAND, OR 97204

EXAMINER

HANDAL, KAITY V

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

03/31/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/551,516	Applicant(s) WHYATT ET AL.	
	Examiner KAITY V. HANDAL	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-21, 24-26 and 55-59 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-21, 24-26 and 55-59 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/28/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 24-26 and 54-59 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 11/28/2008.

Specification

2. The disclosure is objected to because of the following informalities:
- a. Page 18, line 21, reference numbers 400, 404 and 402 are illustrated in Figure 13 and not in Figure 10.
 - b. Page 18, line 17 contains a typographical error: "shallower that".
- Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 18-19 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bowe et al. (US 2003/0105172 A1).

With respect to claim 18, Bowe teaches a steam reformer (Fig. 3, 30) operable to produce hydrogen from steam and hydrocarbons (as illustrated); and a vaporizer

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(31) for supplying the steam to the steam reformer (as illustrated); wherein the steam reformer (Figures 1 & 4) is a panel (Fig. 4, 42) defining a first face and a second face (as illustrated) wherein the length and width of each face is substantially greater than the distance between the faces (as illustrated in Figure 6). Bowe fails to teach explicitly having a fuel cell, however it would have been obvious if not inherent to one having ordinary skill in the art at the time of the invention that the hydrogen generated by the steam reformer can be supplied to a fuel cell for power generation.

With respect to claim 19, Bowe teaches a multiplicity of reformer heating channels (Fig. 4, 44) from the first face to the second face of the steam reformer (as illustrated) wherein the smallest dimension of the heating channels is less than about 0.05 inch/(.03 mm = 0.0118 inches) (page 4, paragraph [0044], lines 1-7).

5. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bowe et al. (US 2003/0105172 A1), as applied to claim 19, in view of Shimazu et al. (US 2001/0049906 A1).

With respect to claim 20, Bowe discloses all claim limitations as set forth above including having the vaporizer (31) being downstream of the reformer (30), but fails to teach further details on the vaporizer wherein the vaporizer is a panel defining a first face and a second face having a multiplicity of vaporizer heating channels therethrough. Shimazu teaches a vaporizer (Fig. 1, 32) downstream of a steam reformer (30) wherein the vaporizer (Fig. 24) is a panel (172) defining a first face and

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a second face having a multiplicity of vaporizer heating channels there-through (as illustrated) (page 5, paragraph [0071]) in order to vaporize any unvaporized or precipitated water with greater speed in the bottom region of the reformed gas channels (page 5, paragraph [0072]).

It would have been obvious to one having ordinary skill in the art at the time of the invention to replace the vaporizer of Bowe with that of Shimazu in order to vaporize any unvaporized or precipitated water with greater speed in the bottom region of the reformed gas channels.

With respect to claim 21, Shimazu further teaches a variable speed blower means (Fig. 1, 26).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAITLY V. HANDAL whose telephone number is (571)272-8520. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. V. H./
Examiner, Art Unit 1795

1/26/09

/Alexa D. Neckel/
Supervisory Patent Examiner, Art Unit 1795